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Tar Emulsion Breaker Trial
Dated: 1977

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INTEROFFICE
CORRESPONDENCE

Copies to:

Date: May 12, 1977

To: Mr. R. Rankin
From: V. Beaucaire
Subject: Trial of Nalco's 6WE923 Tar Emulsion Breaker
Reference: D2-003-007

A. Cook
N. H. Keyser
C. Lin
J. T. Seaman

Background

As we discussed on May 10, I would like to arrange for a one month trial of Nalco's 6WE923 tar demulsifier in place of Tretolite's RI-3. The quality of the tar today is significantly different than it has been in the past, and recent tests show the RI-3 is not effective for breaking the current tar-water emulsion.

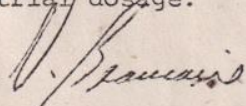
Our recent laboratory tests with 6WE923 and RI-3 used concentrations in the 500 to 10,000 ppm range. This is our normal test range and is the same range used by Nalco last March in their initial tests with 6WE923 on a sample of tar we obtained last summer, copy attached. (For reference, RI-3 has been used over the years at 2,000 ppm.) The 6WE923 proved to be considerably more effective than RI-3 for breaking the emulsion we experience today.

John Webb of Nalco ran emulsion breaking tests with 6WE923 concurrent with our tests. Based on reports he heard from Nalco's laboratory about the unusual effectiveness of 6WE923 at extremely low dosages, John included tests at dosages of 20, 50, and 100 ppm of the additive. His results showed good water break at these low dosages and are included in his letter dated May 4, copy attached.

Proposed Test

I discussed a one-month test of 6WE923 with John Webb after meeting with you on Tuesday. Considering the high cost of 6WE923 (about three times the cost of RI-3) and the good test results at low dosages, I would like you to order one (1) drum only of 6WE923 for a low dosage plant test. This product costs \$1.16 per pound in one drum lots; one drum will cost about \$574. If the additive is effective at a dosage of 100 ppm, one drum will last for one month. Nalco will furnish a pump for the test if the present pump has too high a pumping rate.

It will take about two weeks to get the 6WE923 after the order is placed. During that period C. Lin will run more tests with the agent in the 20 to 500 ppm dosage range to finalize the trial dosage.


V. Beaucaire

VB/ey

Attachments

NALCO MEMO to: J. R. Webb

FROM K. E. Katnik

DATE March 25, 1977

COPIES TO A. J. Bajusz
E. S. Johnson
R. J. Michalski
W. S. Norton
J. E. Phelan
R. G. WatsonSUBJECT Tar Dewatering at
Interlake Steel
Chicago, Illinois

Job No. 77-8

John:

The emulsion breaking lab has completed its preliminary work on the tar sample you brought in from Interlake Steel.

Analysis of the untreated tar showed a 39.8% moisture content. Treatment of this tar was accomplished with NALCO 6WE-923, tar dewatering aid, at a minimum dosage of 2,000 ppm, with heating at 200°F for a period of 8-16 hours. The moisture content was reduced from 39.8% to 1.2% with the 6WE-923 at the prescribed dosage.

The following is a dosage curve for 6WE-923 which shows how the moisture content varies with chemical dosage:

Moisture Content of Interlake Tar
with Respect to Dosage of Nalco 6WE-923

<u>6WE-923 Dosage (ppm)</u>	<u>Moisture Content in Tar (%)</u>
0	39.8
500	22.6
1,000	22.6
1,500	25.9
2,000	1.2
5,000	8.4
10,000	4.3

As you can see, these data show that it is quite difficult to overdose the 6WE-923, but it is also necessary to have a minimum 2,000 ppm concentration to achieve the desired results.


NALCO CHEMICAL COMPANY

4415 W. HARRISON ST., SUITE 510 □ HILLSIDE, IL. 60162 □ AREA 312-449-0400

May 4, 1977

Interlake, Inc.
135th and Perry
Riverdale, Illinois

Attention: Mr. V. Beaucaire

Gentlemen:

Tabulated below is the volume percent water broken from the coal tar samples during our evaluation of Nalco 6WE923 emulsion breaker.

The tar sample taken on 4/26/77 is a "normal" tar, but the sample taken on 4/29/77 was after the cleaning of the collector main and this was very difficult to break. The sample taken on 5/3/77 was still bad tar, but getting closer to normal.

During our bottle tests, all of the samples were dosed with chemical and mixed with an electric mixer at the same speed for the same length of time and heated in a water bath at 180°F for the indicated amount of time. The percent water break was determined by measuring the relative heights of the liquid phases.

Dr. C. Lin evaluated the 6WE923 in beakers using a gang stirrer to slowly stir the heating samples. Exceptionally good breaks were obtained using this technique.

VOLUME PERCENT WATER BROKEN FROM TAR

Dosage of 6WE923 (ppm)	Sample 4/26/77			4/29/77	4/29/77	5/3/77
	2 Hours Heating	19 Hrs Heating	3 Days Heating	AM Sample 2Hrs.Htg.	PM Sample 2Hrs.Htg.	Sample 4Hrs.Htg.
Blank	0	Tr	0	0	0	10
20		16.7	21.1	Tr	8.8	
50	18.5	22.2	22.8	Tr	12.7	20
100	19.0	19.0	16.1	Tr	5.9	19.3
500	13.8	20.0	19.8	Tr	3.8	10.9
1000	11.3	18.9	19.0	Tr	1	15.8
2000	11.3	20.4	20.0	Tr	1	16.1
3000	19	16.1	15.9	Tr	1	
4000	12.1	7.1	5.5	Tr	1	25.9
5000	16.7	13.8	14.0	Tr	1	

NALCO CHEMICAL COMPANY

Mr. V. Beaucaire
Interlake, Inc.

May 4, 1977
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From the above data, we are obtaining very good water breaks at the 50-100 ppm level using 6WE923.

The cost of 6WE923 is \$0.860/lb. in 12 drum lots and is available in 3,000 gallon bulk quantities at \$0.76/lb. Based on a tar flow of 15,000 gallons per day and a chemical dosage of 75 ppm, the daily cost would be \$9-\$10 per day at the 12 drum price.

Handwritten notes:
\$1.16/lb. - 1 drum
495/127
574

It is possible that, because of the changes in tar quality additional emulsion breaker will need to be fed, but through our service calls at the plant we will be aware of these needs and will recommend the necessary changes based on our test data.

Thank you for this opportunity to providing you with this proposal and should you have any questions, please do not hesitate to contact me.

Very truly yours,

John R. Webb

John R. Webb
Area Manager

JRW:mac

cc: Dr. C. Lin
Mr. R. Rankin, Interlake, Inc.
10730 Burley Ave., Chicago, Ill. 60617
NALCO--Ms. K. Katnick